

# Space News ROUNDUP!

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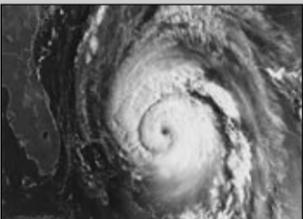
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## Incubator to help business use technology

By Audrey Schwartz-Rivers

Combine advanced technologies developed for human space flight at JSC with the University of Houston's science and business acumen, and Texas gains an innovative resource to take its high-technology sector to new heights.

The UH-NASA Technology Commercialization Incubator is designed to help local small and mid-sized businesses commercialize space technology. NASA plans to contribute \$1.2 million over three years to the project. The University of Houston provides the commercialization and research expertise of its science, business and engineering faculties. In addition, UH houses the incubator facilities.

"This is a major step in forming a relationship among the university, government and industry and carries out an important part of UH's mission. We will have a significant impact in Houston," said Arthur

Vailas, UH vice president for research and vice provost for graduate studies.

NASA has developed tens-of-thousands of cutting edge technologies in its quest to explore space, many with the potential to be applied to Earth-based problems. Unfortunately, the private sector often does not know about them or lacks the know-how to modify space technology for terrestrial applications.

"The business technology incubator is an important tool NASA can use to promote commercially viable uses of publicly developed technology," said Hank Davis, director of JSC's Technology Transfer and Commercialization Office. "NASA-patented technology can be licensed by entrepreneurs who, with the help of the business incubator, can bring to market new commercial products. "The University of Houston provides a vital element by analyzing

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JSC Photo S98-08356 by Mark Sowa

Astronaut Andy Thomas, second from left, gets a warm greeting from STS-91 Commander Charlie Precourt at Ellington Field after completing four and a half months of long-duration space flight aboard the Russian Mir Space Station and closing out the continuous American presence on Mir. Joining Precourt in welcoming Thomas on Sunday are JSC Director George Abbey, far left, and Phase 1 Program Manager Frank Culbertson.

## Discovery's landing begins second phase

As *Discovery* glided out of a cloud-speckled sky and rolled to a smooth landing last Friday, bringing the Phase 1 shuttle-Mir docking program to a close, astronauts and agency managers turned their full attention to the next phase—construction of the International Space Station.

Commander Charlie Precourt, fresh from his third visit to the 12-year-old Russian outpost, presented three legacies to Phase 1 Program Manager Frank Culbertson and NASA Administrator Daniel S. Goldin "in hopes that they can pass these to the first crews that go to the International Space Station, symbolically leading them with the lessons learned from Phase 1."

The mementos included an American flag that hung on the wall of Mir for every press event by American astronauts, an EVA tool used by the Russians on Mir and an optical disk used to collect scientific data during Phase 1.

"The flag of our country is hundreds of years old. This wrench is a space tool which is tens of years old. And this disk is new technology, which is years old," Goldin said. "This is all symbolic because we're moving ahead, we're not moving backwards. This is also symbolic of the incredible change we've had in our world. When we started out, we didn't know each other. Now, we really know the Russians and we know with certainty that we're going to open up the universe to benefit life on this planet."

Culbertson vowed to take good care of the items, and with the help of his Russian counterpart, Valery Rymyn, who had just returned to Earth after his first visit to Mir aboard *Discovery*, "put them to good use."

"I am extremely happy that we were able to do what we set out to do, which was to take seven Americans to the Mir and bring them home safely," Culbertson said. "But even better, we learned how to work better together in space. We're better prepared to operate the International Space Station and we did what we said we were going to do. We will do what we say we are going to do in the future."

Precourt piloted *Discovery* to an on-time touchdown at 1 p.m. CDT June 12 at Kennedy Space Center, wrapping

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## Twenty-five in 1998 astronaut class

Eight candidates already members of JSC work force

Twenty-five women and men will make up the astronaut candidate class of 1998, which will begin one year of training and evaluation at JSC in mid-August.

This year's class consists of eight pilot and 17 mission specialist candidates, including Barbara Morgan, who was named as an educator mission specialist in January. Of the 25 class members, 21 are male and four are female.

Eight of the candidates already live in the

Clear Lake area and work in various capacities at JSC.

The new class members are: Clayton C. Anderson; Lee J. Archambault (Maj., USAF); Tracy E. Caldwell, Ph.D.; Gregory E. Chamitoff, Ph.D.; Timothy J. Creamer (Maj., USA); Christopher J. Ferguson (Lt. Cmdr., USN); Michael J. Foreman (Cmdr., USN); Michael E. Fossum; Kenneth T. Ham (Lt. Cmdr., USN); Patricia C. Hilliard, M.D.;

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## American Heritage Week

### Team NASA presents fifth annual JSC cultural diversity celebration

JSC will celebrate the diverse cultural backgrounds of its employees, which meld to form a dynamic and well-rounded work force, with its fifth annual American Heritage Week July 6-10.

This year, for the first time, the celebration will involve participation by the entire "Team NASA"—the JSC civil service and contractor employees throughout the Clear Lake area.

"American Heritage Week celebrates the diverse heritage of the entire 'Team NASA,'" said Equal Opportunity Programs Director Estella Hernandez Gillette. "Employees, families and friends of JSC and our aerospace partners come together to

celebrate the similarities that bring us together as well as the differences that allow us to learn and grow together."

Entertainment and exhibits will be presented during the week at the Bldg. 3 cafeteria during lunch and during the grand finale on July 10 beginning at 1 p.m. with a mini-parade around the center, then the grand opening at 3 p.m. at the Gilruth Center.

Entertainers will include the Star Spangled Brass, Cesky' Folklorini Soubor 2 Gtexasu, Jhankar School of Dancing Priyanka Patel, Indian Dancer; O'Maoileidigh Irish Dancers of Houston; Chinese Senior Association of Houston; Almost Good ol' Boys, the

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## Employees get one-time chance for retirement switch

JSC civil service employees covered under the Civil Service Retirement System will be given the opportunity to transfer to the Federal Employees Retirement System during a one-time "open season" that runs from July 1-Dec. 31.

This open season is the result of recent legislation passed by Congress and will be a governmentwide event. Any permanent or term employee covered under either CSRS or CSRS offset is eligible.

Each employee's latest SF-50 Notice of Personnel Action Block 30 will show under which system they are being covered. Employees also may contact Employee Services at x32681

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# Thomas' return marks 812 consecutive days in orbit

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up a 10-day, 3.8-million-mile mission. Astronaut Andy Thomas sat in *Discovery's* middeck in a special recumbent seat to help ease his initial exposure to gravity, returning to Earth after 141 days in space, 130 as a Mir crew member. He traveled about 56.4 million miles during his time in space.

Precourt, Ryumin, Pilot Dom Gorie and Mission Specialists Franklin Chang-Díaz, Wendy Lawrence and Janet Kavandi arrived home in Houston on Saturday and was greeted by friends, family members and co-workers at Ellington Field. Thomas, however, waited in Florida until Sunday before returning to Houston, saying that his readaptation to gravity was

making him tired and nauseous.

"I'm sorry I couldn't make it last night," Thomas said Sunday. "If you had seen me about this time yesterday, I was not a pretty sight."

"I expected it to be difficult," Thomas said of his readjustment to gravity. "But what surprised me was that when I landed I felt everything was fine and that this would be easy. It was actually three or four hours after landing, when I started to stand up, that I started to get these vestibular twinges. Standing was not a good idea."

Thomas' return to Earth marked the end of a consecutive 812-day U.S. presence in space and 802 consecutive days on the Mir by a U.S. astronaut. Since 1995, seven U.S. astro-

nauts—Norm Thagard, Shannon Lucid, John Blaha, Jerry Linenger, Mike Foa, David Wolf and Andy Thomas—spent a total of 907 days as Mir crew members.

"Everybody keeps talking about ends and how we're ending," Precourt said at Ellington. "But really we're not. We're beginning. We're beginning a new program with out international partners in Phase 2. This is just a stepping stone to that."

Left behind on the orbiting Russian outpost when *Discovery* undocked June 8 were Mir 25 Commander Talgat Musabayev and Flight Engineer Nikolai Budarin. They are scheduled to return to Earth in August, to be replaced by another cosmonaut team.

Thomas faces a 45-day regimen of physical rehabilitation following his long stay in weightlessness.

*Discovery* docked with Mir at 11:58 a.m. June 4, and at 1:34 p.m. the hatches between *Discovery* and Mir swung open. Precourt exchanged handshakes and embraces with Mir 25 Commander Talgat Musabayev as Thomas officially became a member of *Discovery's* crew.

When the two vehicles undocked over Russia, *Discovery's* crew had transferred some 1,200 pounds of water and almost 4,700 pounds of resupply material or return items.

With one exception, the STS-91 mission was a smooth one. Shortly after liftoff, flight controllers reported

they were unable to fully activate the Ku-band antenna system used to relay high-rate data and television signals to the ground. Important events were documented using the Mir television system and Russian ground stations.

In addition, scientists working with the Alpha Magnetic Spectrometer were limited in their ability to see data from the innovative particle detector in the cargo bay. The team, led by Nobel laureate Dr. Dr. Samuel Ting, was able to verify the instrument was working as expected through about 100 minutes of downlink data. AMS, investigating the existence of dark matter and antimatter in the universe, recorded more than 100 hours of observations during the flight.

## STS-91 crew to share images, experiences

The STS-91 crew will share bitter-sweet memories of the final shuttle-Mir docking mission at 7:30 p.m. Monday, June 29, in Space Center Houston's IMAX Theater.

Commander Charlie Precourt, Pilot Dom Gorie, Mission Specialists Franklin Chang-Díaz, Janet Kavandi, Wendy Lawrence, Valery Ryumin, and returning Mir resident Andy Thomas will share photos and experiences from the 10-day mission aboard *Discovery* that landed June 12.

Immediately prior to the briefing, JSC Director George Abbey will recognize key individuals and teams for their outstanding contributions to the flight. Abbey also will recognize the astronauts' accomplishments with the presentation of their NASA Space Flight Medals. The program will conclude with a showing of the IMAX movie "Mission to Mir."

Limited seating will be available for the program, which is open to JSC employees, family members, friends, contractors both on and off site, and the public. Doors open at 7 p.m. and seating is first-come, first-served. Admission and parking at Space Center Houston are free. For details call Helen Harris at x38413.

## Mott leaves NASA to take Boeing job

Mike Mott, NASA associate deputy administrator (technical), will leave NASA to join Boeing Space Transportation, Seal Beach, Calif., as vice president of business development.

Mott, one of the agency's top three managers, has served the NASA administrator since January 1994.

"Mike has been a valuable asset to NASA, and his contributions will be sorely missed," Administrator Daniel S. Goldin said.

Mott served in the Marine Corps in numerous assignments throughout the U.S. and the western Pacific. He graduated from the U.S. Naval Test Pilot School, participated in 89 major flight test projects, and commanded Marine Aircraft Group 41 at Andrews Air Force Base. He has more than 3,800 flight hours in 62 types of aircraft and 210 carrier landings.



NASA Photo s98-07969 by Robert Markowitz

**NEXT MISSION—Crew trainer Adam Flagler, left, checks out STS-95 Payload Specialists Chiaki Mukai and John Glenn as they practice launch and entry procedures June 5 in one of the Bldg. 9 shuttle training mockups. The STS-95 mission, tentatively scheduled for launch on Oct. 29, will involve a variety of science experiments being carried in the pressurized Spacehab module, deployment and retrieval of the Spartan free-flyer payload, and operations with the HST Orbiting Systems Test and the International Extreme Ultraviolet Hitchhiker payloads. Astronaut Curt Brown will command the mission and fly the shuttle with the help of Pilot Steve Lindsey. Also aboard will be Mission Specialists Scott Parazynski, Steve Robinson and Pedro Duque from the European Space Agency.**

## Baltimore institute to manage next Hubble

The duties of the Space Telescope Science Institute in Baltimore, Md., will be expanded to include the management of science operations for the Next Generation Space Telescope, NASA officials announced last week.

The Space Telescope Science Institute, located at the Johns Hopkins University, has been operating the science program for the Hubble Space Telescope since 1983.

The NGST is one of the cornerstone missions of the Astronomical Search for Origins and Planetary Systems, one of the major thrusts of NASA's Space Science program. The NGST will provide a critical follow-on to Hubble, and continue to deliver world-class optical and infrared science well into the second decade of the new millennium.

"We looked through a microscope to decide who would operate the Next Generation Space Telescope," said NASA Administrator Daniel S. Goldin. "NASA and the scientific community had to determine who had the right facilities, who had the right experience, who was the best. The clear choice was Baltimore's Space Telescope Science Institute."

A goal of the Next Generation Space Telescope is to observe the first stars and galaxies in the universe to further understanding of how it formed following the theorized "Big Bang." NGST will have capabilities currently unavailable in existing ground-based or space telescopes.

NGST studies are under way and NASA plans to start formal development of the NGST in 2003, with a projected launch in 2007.

## Smoke from Mexican fires prompts study

Since the beginning of the Mexican fires in late March and early April of this year, atmospheric researchers at NASA using the Total Ozone Mapping Spectrometer, have been closely monitoring the fires and the smoke aerosols emitted by the fires.

The smoke has been thick enough to be easily visible on the ground and resembled a light haze to medium fog in parts of Texas, Georgia and Florida. In the Houston area, public health officials issued warnings to remain indoors to avoid adverse health impacts, such as asthma, from the smoke.

TOMS obtains daily images of the amount of smoke present in the atmosphere anywhere in the world. Scientists have a keen interest in smoke aerosols generated by fires like those in Mexico because smoke contributes to the overall global air-pollution levels that can impact the quality of air that humans breathe. Increased smoke concentration from human-induced fires also could contribute to global climate change.

The fires started in southern Mexico and northern Guatemala near the end of March 1998. Though most of the fires were started as part of the annual clearing of agricultural fields, some started naturally because of the extremely dry conditions. The dry conditions are associated with the El Niño weather patterns similar to those that caused fires in Indonesia earlier this year.

The small particles, called aerosols, that comprise smoke can affect the amount of energy reaching the Earth's surface by reflecting and/or absorbing sunlight. Smoke aerosols also can act as small particles upon which clouds can form. Clouds containing smoke aerosols are believed to reflect and absorb energy in different ways than clouds formed from natural particles such as dust or sea salt.

"Shortly after the fires started, we noticed the increased amount of aerosols (in this case smoke) in the region," said Dr. Jay R. Herman, an atmospheric scientist at Goddard Space Flight Center. "By mid-April large amounts of smoke were covering parts of Mexico with plumes extending into Florida, Texas, New Mexico, California and Wisconsin."

Because of the difficulties in extinguishing the fires, the large smoke plumes are still present in Mexico. The smoke tends to extend from the ground up to an altitude of about three kilometers (1.8 miles) and follow the prevailing winds. Due to wind shear in this altitude range, there is frequently more than one plume, with smoke blowing from west to east and from south to north. With prospects of rain slim due to the El Niño-driven drought, scientists believe the smoke may linger for a long time.

TOMS is part of NASA's Earth Science strategic enterprise, a long-term, coordinated research effort to study the Earth as a global system. TOMS images of the smoke plumes are available on the Internet at:

<http://jwocky.gsfc.nasa.gov>

## Baker leads human space flight in Russia

NASA has formed an Office of Human Space Flight Programs, Russia, to oversee the transition from the Phase 1 Program to the assembly and operation of the new International Space Station.

Astronaut Mike Baker, a Navy captain, leads the office. Baker recently was named assistant director to JSC Director George Abbey to supervise the transition of human space flight initiatives associated with the cooperative effort.

Baker is NASA's lead representative to the Russian Space Agency and its contractors on operational issues as part of NASA's Human Exploration and Development of Space initiative. This places Russian liaison for all human space

flight operations and initiatives under one office and consolidates preparations for the assembly of the International Space Station, including mission operations, crew training, logistics and technical liaison activities with Russian space organizations.

"It is critical to ensure a seamless transition takes place between the successful Phase One program and the start of construction of the International Space Station," Abbey said. "With this new office, the ISS program can take advantage of the knowledge and momentum gained from Phase 1 under the direction of Frank Culbertson. Baker's leadership and expertise provide the framework to coordinate activities with our Russian colleagues and provide him the unique opportunity

to bring the operations team together for this project," Abbey said.

Baker also is responsible for astronaut training at the Gagarin Cosmonaut Training Center at Star City and all NASA mission operations functions at Mission Control in Korolev.

Astronaut Jim Halsell, an Air Force lieutenant colonel, is serving as the director of operations in Russia. Tom Cremens will serve on Abbey's staff in Houston as Baker's deputy.

JSC's Mission Operations Directorate also has opened a new NASA Training Office in Star City. The office includes four instructors, one schedule coordinator, a training division management representative and other personnel supporting the ISS Expedition Astronauts during their training.



Space station instructors Chris Niemann, left, and Ginger Kerrick hang the Space Flight Training Division and Mission Operations Directorate plaques at the new NASA Training Office in Star City, Russia.

# Community News



Photo courtesy USA

Jerry Roberts, a United Space Alliance employee, recycles office paper earlier this year as part of a joint JSC-USA recycling drive associated with Earth Day.

## New uses for old numbers

# JSC offers chance to recycle old home telephone books

Never know what to do with all of those old telephone books when the new ones arrive? Here's your chance to get rid of them and benefit the environment at the same time.

As the new commercial telephone books arrive in June, JSC will have bins on-site from June 22-July 6 to collect the old phone books.

"Quite a few people called or E-mailed me asking for phone book recycling following our recent magazine and newspaper recycling opportunity," said Jo Kines of JSC's Environmental Services Office. "I was really pleased about the interest in recycling."

The recycling bins will be located so that employees can drive by and drop off the phone books from home or the office. One bin will be in the parking lot across from (west of) Bldgs. 46 and 47 near Bldg. 44. The other will be in the parking lot across from (south of) Bldgs. 2 and 13 on Avenue D. Please place *only* telephone books in these recycling bins.

This phone book recycling program is conducted in partnership with JSC, TransWestern Publishing, BFI and International Cellulose.

The newspaper and magazine recycling that was conducted from April 20 through May 11 was a great

success. The effort was sponsored by JSC's Environmental Services Office in partnership with United Space Alliance Houston in celebration of Earth Day 1998. Champion Paper provided the recycling bin and reported that JSC collected almost 2,000 pounds of recyclable materials. Space Center Intermediate School was given credit for what was collected.

An overhead transparency recycling generated a paper box full of transparencies. The transparencies will be mailed to 3M for recycling. Several organizations have asked for transparency recycling to be permanent because so many are generated as a result of weekly briefings.

Information on JSC's paper recycling guidelines (what to recycle and what not to put in the bins), some data about how much has been recycled in the past few years and information on Houston-area recycling locations for those who recycle at home is now available on the Internet. The World Wide Web link is called "JSC Recycling Information" and the address is: <http://stic.jsc.nasa.gov/collections/COD/recycle.htm>

Contact Kines at x33218 if you have any questions about any of these special recycling programs.



**Earthwatch**

# JSC Blood Drive on record-setting pace for donations

JSC's latest on-site blood drive netted a total of 466 units of blood, keeping the center on pace for a record-setting year of life-giving donations to the community.

"That's the best yet outside of the two drives we've done on Safety and Total Health Days (508 at each of the last two year's events)," said drive co-chair Dan Mangieri, who explained that June's total surpassed that of the last drive, 426 units.

JSC's Blood Drive Committee reports statistics that show a steady growth in donations over the past few years, from 380 total donations in 1995 to 1,513 in 1997 and a projected 2,000-plus this year.

"In 1996 we initiated a major effort to redesign and improve JSC's blood donor program by polling our customers, analyzing their feedback, prioritizing their needs, organizing a team to address program changes, moving the drive location, bolstering publicity, and putting innovative promotions in place," Mangieri said. "In the spirit of 'continuous improvement' we've added new promotions and other popular features every year, like our new blood drive website found on the Human Resources home page. It contains scheduling and other useful information for our donors."

JSC's Blood Drive Committee and several high-gallon donors visited St. Luke's Hospital this spring, learning about hospital and blood bank activities and witnessing open heart surgery in progress, which was fascinating, "but made some of us woozy at times."

"The tour was a great experience, and made me more aware of both the need for and the value of giving blood," said Raymond Lee. "One of our tour hosts had received open heart surgery twice, and was a living testimonial to the value of blood donations. Without blood donations, most surgery and many medical procedures would not be possible. There is

research under way to develop a substitute for blood, but currently no substitute exists. So, giving blood really is giving the gift of life."

Nurse Gwen Rangel, helped the group don white "bunny suits" for a visit to the catheterization lab presentation on alternatives to surgery, and Mike McGee, vice president of THI's research administration, allowed the committee to inspect a late-model HeartMate left ventricular assist device. "What an amazing experience this was for me," said Heidi Glaisyer. "As involved as I am with the medical community, being ill, I never honestly realized the impact our blood drives have on our community. I was so impressed with the way they maximize the use of each unit, such a precious commodity."

Glaisyer suffers from end stage renal disease (kidney failure) and had a transplant that eventually failed. During the transplant, she bled severely and needed several units of blood. Thanks to Exploration Programs Office coworkers, she was able to have her own blood blank. She's awaiting another transplant, but in the meantime needs several units of blood a month.

"What has stayed embedded in my mind and heart was the woman having the bypass surgery," Glaisyer said. "But what caught my eye was the cooler of blood, tucked neatly under the table in the event it was needed. In that red container were the generous donations of four individuals which could have made the difference between life and death for this woman. Our donors made that security possible—a 15-minute contribution determined whether this woman had her surgery or not.... My friends here at JSC have always seen that blood is put in my name when I let them know I need it. I feel lucky to have help from my friends—their simple 30-minute contribution literally has saved my life."

The next blood drives will be Sept. 23-24 to coincide with Safety and Total Health Day, and Dec. 15-16.

## Johnson Space Center & St. Luke's Blood Donor Program



**Life Support Partners**

# JSC Safety Alert

## Dry Conditions Spark Fire Alert

JSC this month issued a general fire alert for on-site JSC and Ellington Field facilities. Due to the lack of rain, grassy areas have become dangerously dry and are subject to ready ignition. A major grass fire may endanger both life and structures adjacent to open fields.

This general fire alert suspends all nonessential governmental activities, such as model rocketry and model aircraft, and all activities for JSC that operate in or over dry vegetation areas. Normal activities may continue at the Gilruth Center subject to existing policies for use of the facility.

Only essential off-road vehicle activity will be permitted since the high temperature of an exhaust system or a spark can ignite vegetation. Employees are cautioned to use vehicle ash trays rather than discarding ashes or "cigarette butts" outside a vehicle.

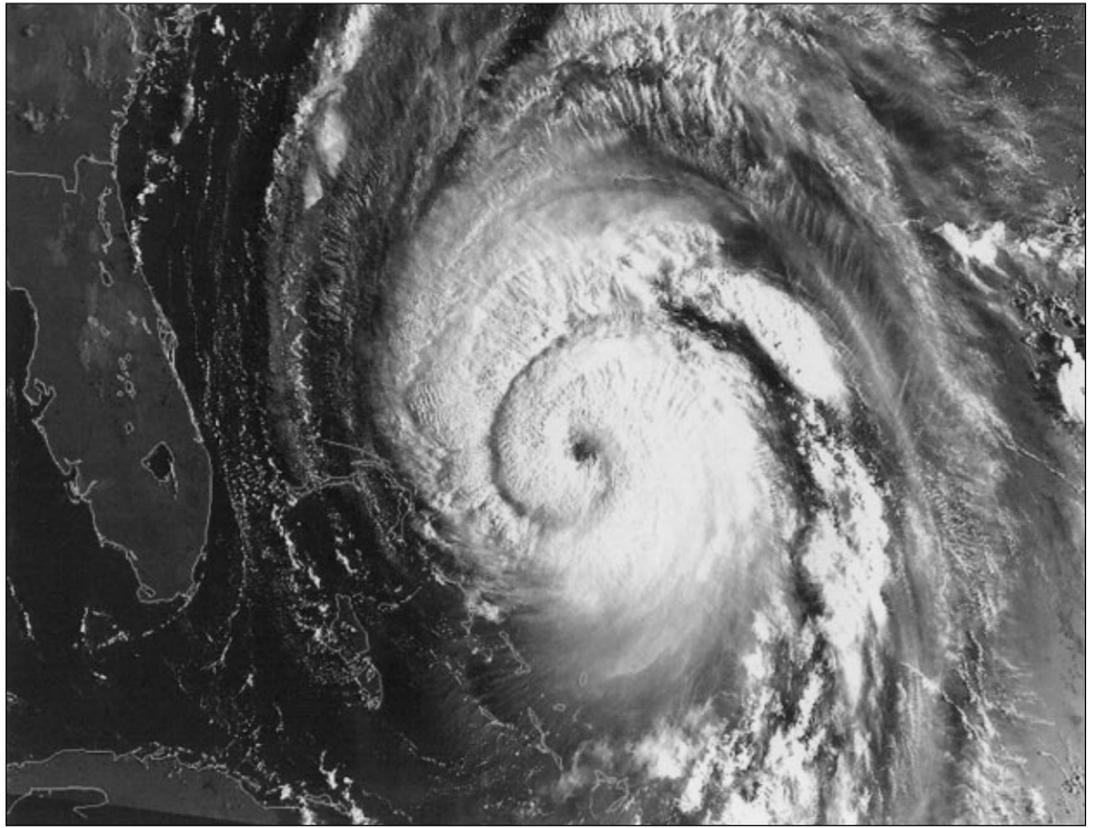
JSC will continue to monitor Harris County and the Texas Forestry Service for alert levels. This notice will be rescinded when danger levels diminish.



Members of the JSC Blood Drive Committee don their "bunny suits" for a tour of the St. Luke's Hospital catheterization lab and a presentation on the alternatives to surgery. Mike McGee, Texas Hearth Institute's vice president for resarch administration, showed the group a late-model HeartMate left ventricular assist device that is awaiting Food and Drug Administration approval for use on a long-term basis. The device currently is used only by patients awaiting a donor heart. From left are: Mark Anderson, Lyn Gordon-Winkler, Lois Lenox, Amy Mendez, Gwyn Smith, Brenda Lancaster, Heidi Glaisyer and Rich Delgado.

# Riding Out the Storm

## JSC enters time of year when nature's potential fury merits continual readiness



It is difficult to believe that hurricane season is upon us when the rain gauge has been nearly empty for more than a month.

Hurricane season began June 1 and will extend through Nov. 1. JSC has entered a state of continual preparedness in anticipation of the 1998 storm season. The JSC Hurricane Ride-out Team is preparing for the worst while hoping for the best.

The Hurricane and Severe Weather Plan at JSC lists the guidelines that direct the preparations for a storm.

### Action Level 4

Action Level 4 begins when a storm poses a threat to JSC within 72 hours. "This is typically when the storm enters the Gulf of Mexico," said Dennis Perrin, JSC's hurricane planning manager.

Members of the hurricane team are required to review the plan to ensure that all the JSC will have a full stock of emergency supplies to a ride out a storm if needed.

JSC's Bill Roeh, chief of the Plant Engineering Division, is captain of the Hurricane Ride-out Team and has primary responsibility for preparing the Center when severe storms threaten.

The Spaceflight Meteorology Group follows the storm using weather satellite imagery and other data and interprets the bulletins issued by the National Hurricane Center. The forecasters advise the JSC senior staff and the Hurricane Ride-out Team throughout the

storm threat period.

"At this point we ask supervisors to allow employees with special considerations such as small children to utilize the liberal leave policy in order to evacuate their families," Perrin said.

Supervisors and managers also should review project priorities and assignments during Level 4 to assure operations can be reduced or terminated before storm conditions pose a threat to the center.

### Action Level 3

Action Level 3 goes into effect when a hurricane could threaten JSC/Ellington Field within 48 hours.

At the direction of the Center Operations Director, Jim Hickmon, the Hurricane Ride-out Team moves to the Emergency Operations Center in Bldg. 30L to set up a command center. Each organization has a designated Emergency Planning Representative and an alternate who stay informed of the status of the action levels during a hurricane.

"When a storm is 48 hours out from JSC, we encourage supervisors to allow all employees to utilize the liberal leave policy and we encourage employees to take it," Perrin noted.

### Action Level 2

Level 2 is initiated by authorization of the center director when the threat to JSC is within 36 hours from landfall.

"At Level 2 we look for JSC Director George Abbey to release employees and close the

center," Perrin said. "The only people left on site are the Ride-out Team," he added.

Prior to closing the center, employees will be asked to secure their offices.

"An important part of preparing the center for closing because of a hurricane threat is securing offices, a responsibility that falls on every employee," JSC Emergency Preparedness Manager Bob Gaffney said.

These preparations include protecting computers, raising blinds, securing classified materials, and closing all doors. The emergency planning representatives in each organization are kept informed on the status of the action levels during the alert and will coordinate information concerning shutdown activities and work assignments for their area.

A group of 14 Area Protection Teams from the Plant Engineering Division check buildings and roofs, picks up loose objects outside, secure possible hazards and make preparations to shut down site utilities.

"The main thrust should be on preparation; those things that all employees can do to mitigate the effects of a storm or minimize the degree of damage they can do," Roeh said. "Preparation is the key to successful recovery; we'll recover regardless, but our recovery will be faster if we prepare adequately in advance."

The Hurricane Ride-out Team completes all protective measures that will place the Center in a final state of preparedness. The Ride-out Team continues to secure the center up to the point the weather becomes unsafe.

### Action Level 1

Action Level 1 is initiated by the center director and goes into effect when gale-force winds arrive at the center making it too dangerous to continue outside activities. The Ride-out Team gathers at their posts and waits for the storm to subside. During the storm, activities are limited to only essential emergency repairs that can be performed without placing the health and safety of the assigned personnel at risk.

Immediately after the storm, the Ride-out Team moves back into action, assessing the damage and arranging for necessary repairs.

"We have a Damage Assessment Plan and a Damage Assessment Team that looks at the damage and evaluates the buildings for safety," Perrin said.

"The Damage Management Team reports to the Hurricane Ride-out Team captain. They evaluate when employees can return to site and what buildings are brought on line first," Perrin added.

In the event of an evacuation, employees can continue to stay in contact with the center through the use of the two emergency information phone numbers listed below.

Public Affairs notifies employees when to return to work through the Employee Information Service, x36765, and broadcasts by local radio and television reports.

For hurricane information on the Internet, employees may access <http://shuttle.nasa.gov/weather/>. □

## When disaster strikes

Where will your family be when disaster strikes? They could be anywhere—at work, at school, or in the car. How will you find each other? Will you know if your children are safe? What would you do if basic services—water, gas, electricity or telephones—were cut off?

Local officials and relief workers will be on the scene after a disaster, but they cannot reach everyone right away. Families can—and do—cope with disaster by preparing in advance and working together as a team. Create a family disaster plan. Knowing what to do is your best protection and responsibility.

- **Emergency Supplies:** Keep enough supplies in your home to meet your needs for at least three days. Assemble a Disaster Supplies Kit with items you may need in an evacuation.

- **Utilities:** Locate the main electric fuse box, water service main and natural gas main. Learn how and when to turn these utilities off. Teach all responsible family members. Keep necessary tools near gas and water shut-off valves.

- **Home Hazard Hunt:** During a disaster, ordinary objects in your home can cause injury or damage. Anything that can move, fall, break or cause a fire is a home hazard. Inspect your home at least once a year and fix potential hazards.

- **Evacuation:** Evacuate immediately if told to do so. Listen to your battery-powered radio for instructions. Wear protective clothing and sturdy shoes. Take your Disaster Supplies Kit. Lock your home. Use travel routes specified by local authorities—don't use shortcuts because certain areas may be impassable or dangerous.

## After a disaster

Serious injury can result for anyone dealing with the aftermath of a major storm, tornado, or other disaster, so it's wise to be overly cautious.

- Walk or drive cautiously. Debris-filled streets are dangerous. Washouts may weaken roads and bridges. Snakes and rodents may be a hazard.

- Before entering a building, check for structural damage. Make sure it's not in danger of collapsing. Turn off any outside gas lines and let the house air for several minutes. Don't use open flame as a light source.

- Never leave young children alone or allow them to play in damaged buildings or areas that might be unsafe.

- Wear protective clothing on legs, arms, feet and hands while cleaning up debris. Wear rubber gloves while scrubbing flood-damaged interiors and furniture.

## Denser population means residents should begin evacuation early

Hurricanes are one of nature's most feared systems. They are not the largest nor are they nature's most violent storm; but they combine those qualities as no other phenomenon does.

Powerful winds rotating around the center of the storm, also known as the eye, will produce very rough seas. As the storm makes landfall, the storm surge will flood coastal areas with tide levels 5 to 10 feet (to as much as 20 feet) above normal levels. Tremendous amounts of rain, in addition to the storm surge, will add to the flooding problems.

Hurricane Alicia, a minimum category 3 storm, visited the upper Texas Coast in 1983. This was the last major hurricane to affect this area. A storm surge of 10 to 12 feet accompanied this storm on the West side of Galveston Bay. High winds caused damage further inland. Windows in many of the downtown Houston skyscrapers were blown out and shards of broken glass covered the streets and sidewalks.

The population in the Clear Lake/NASA area has increased significantly since 1983. An increase in population equates to more vehicles on the roads. More vehicles means more delays on area roads. More delays on area roads means longer evacuation times. Accidents, disabled vehicles, and reduced visibility due to rain will increase evacuation times even more.

Bob Gaffney, JSC's Emergency Preparedness manager, encourages employees to take time, before the storm, to develop their own hurricane evacuation plan.

"Now would be a good time," he said. "Personal protection plans should anticipate the arrival of tropical storm-force winds 12 hours or more before a hurricane makes landfall, and expect more of the same on the backside of a hurricane. People who don't evacuate in advance of a severe storm could be isolated in their homes for an extended period of time before community officials declare the immediate emergency has ended," Gaffney added.

Employees should assess the vulnerabilities of their home and contents and develop firm plans for transportation and shelter for their families. Neither the American Red Cross nor local communities (including the City of Houston and Harris County) open shelters in advance of major hurricane threats because Clear Lake is in a flood plain and people could get trapped in shelters when local flooding is severe.

Evacuation plans should include a specific destination, an evacuation route, and several secondary evacuation routes.

Gaffney explained that people have the best chance of making a successful evacuation if they make a family emergency plan including an early evacuation decision and they

stick to the plan.

Questions to consider when making your hurricane plan are:

How close am I to the coast?

Am I in a coastal flood zone?

Will my evacuation route be cut off as heavy rain and high tides flood the area?

Do I have a safe destination?

How much time is required to evacuate my family to this safe destination?

The National Weather Service recommends planning for the hurricane to be one category stronger and to arrive 12 hours sooner than what is forecast.

Geographical knowledge of the area is a must. Elevation maps are available from the Harris/Galveston Coast Subsidence District.

Plan for delays and make sure you have a full tank of gas before leaving. Have prescriptions filled in advance. It may be difficult to obtain medication during a storm or afterwards due to power outages. Bring plenty of cash. ATM and credit cards also may not work during a storm because of power outages. Time and patience are needed during an evacuation. Give yourself plenty of time to evacuate quickly and safely.

Gaffney noted that knowing what to do in an emergency, such as when a hurricane threatens, and careful and thorough planning can greatly reduce the chances of personal injury and property damage. □



# Ripped from the ROUNDUP

Ripped straight from the pages of old Space News Roundups, here's what happened at JSC around this date in:

## 1963

**P**roject Mercury, which successfully reached its goal May 15 with the day-long flight of Astronaut L. Gordon Cooper, has drawn to a close. There will be no MA-10.

The announcement was made June 12 by NASA Administrator James E. Webb, who said NASA will concentrate instead on the planned Gemini launches and on Project Apollo. "There will be no further Mercury shot," Webb told the Senate Space Committee while testifying in behalf of the NASA budget request for \$5.7 billion.

## 1968

**A**jammed aileron control apparently caused the crash of a NASA T-38 jet trainer last October 5 which killed astronaut Clifton C. Williams Jr. Williams was en route from Patrick AFB, Fla., to Brookley AFB, Ala.

## 1973

**S**kylab astronauts established a new manned space flight endurance record Monday morning at 2:22:01 a.m. when they exceeded the Soviet Union's 570 hours, 22 minutes stay in space. The Skylab craft was passing over Nigeria, Africa, at the time.

Astronauts Charles (Pete) Conrad, Paul J. Weitz and Dr. Joseph P. Kerwin were beginning their 25th day in space when the spacecraft communicator in Mission Control Henry Hartsfield informed them, "At 7:22 (Greenwich Mean Time) you will become the new world's champs for longest space flight."

## 1983

**T**hree very important words were added last week to the JSC motto which first came into vogue during STS-5. The new motto: "We Pick Up and Deliver."

For the future of shuttle Operations, the flight of *Challenger* during STS-7 last week was both pivotal and transitional. The world's first reusable satellite, SPAS-01, was successfully deployed and retrieved, clearing the way for complicated rendezvous, repair, deployment and retrieval missions which are planned to become the mainstay of future U.S. space missions.

## 1993

**D**onald K. "Deke" Slayton, 69, one of the United States' original seven astronauts selected by NASA for the Mercury Program in 1959, died June 13, of complications of a brain tumor.

Memorial services were conducted Saturday at JSC for Slayton who flew as Apollo docking module pilot for the Apollo-Soyuz Test Project in 1975, a joint United States-Soviet Union space flight that culminated in the first and only meeting to date in space of astronauts and cosmonauts.



JSC Photo S98-06920

**INSPECTION TEAM**—Inspection 98 core and institutional committee chairs gather to review display locations in JSC's Bldg. 9 shuttle and space station mockup and training area. From left are John Stanford, Mike Kincaid, Bobbie Gail Swan, Cathey Lamb, Lupita Armendariz, Ginger Gibson, Donna Blackshear-Reynolds, Mary Chesler, Stacey Menard, Joe Mayer (Team NASA), Doug Peterson, Robbie LaBrier, René Hasson, Scott Morris and Kathy Jurica. JSC once again will share the breadth and depth of its work with thousands of industry, business, community, and education leaders when Inspection 98 opens Oct. 14-16. For more information or to volunteer, call the Inspection 98 office at x41316.

## Spring leagues announce playoff winners, runners up

JSC's Gilruth Center and the Employee Activities Association would like to offer congratulations to the champions and competitors in this year's spring basketball, softball and volleyball leagues.

### Basketball Champs

Men's C: Old Formula, Capt. Robert Durkins; runner up: Warriors, Capt. Eric Darey.

### Softball Champs

Men's C: B-League Rejects, Capt. Lance Stephens; first runner up: Slug & Chug, Capt. Ray Gonzales; second runner up, Base Cadets, Capt. Pat Hammock.

Men's B: Sox, Capt. Jeff Boxell; runner up: ?????, Capt. Eddie King.

Mixed B: Zehpyrs, Capt. John Coggeshell; runner up: Idiots, Capt.

Mike McFarlane.

### Volleyball Champs

Mixed C: Get Lucky, Capt. Joe Trevathan; runner up: Dynamic Dinkers, Capt. Chris Lupo.

Mixed B: Exotic Thespians, Capt. Jerry Condon; runner up: Old N'Cranky, Capt. Scott Hasse.

Women's: Kinkey Sets, Capt. Amy

Spradian; runner up: Net Relief, Capt. Delene Sedillo.

Men's champs: Transient Spike, Capt. Chris Hickey; runner up: Unbalanced Attack, Capt. Jim McMahon.

### Soccer Champs

Champs: Brasil, Capt. Ken Woodfin; runner up: Photon Torpedoes, Capt. Steve King.

## Gilruth Center News

**Hours:** The Gilruth Center is open from 6:30 a.m.-10 p.m. Monday-Thursday, 6:30 a.m.-9 p.m. Friday, and 9 a.m.-2 p.m. Saturday.

**Sign up policy:** All classes and athletic activities are on a first come, first served basis. Sign up in person at the Gilruth Center and show a yellow Gilruth or weight room badge. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. For more information, call x30304.

**Gilruth badges:** Required for use of the Gilruth Center. Employees, spouses, eligible dependents, NASA retirees and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday; and 9 a.m.-2 p.m. Saturdays. Cost is \$10. Dependents must be between 16 and 23 years old.

**Nutrition intervention program:** Would you like to learn more about the role diet and nutrition play in your health? This six-week program includes lectures, a private consultation with the dietitian and blood analysis to chart your progress. Program is open to all employees, contractors and spouses. For more information call Tammie Shaw at x32980.

**Defensive driving:** One-day course is offered once a month at the Gilruth Center. Pre-registration required. Cost is \$25. Call for next class.

**Stamp club:** Meets second and fourth Mondays at 7 p.m. in Rm. 216.

**Weight safety:** Required course for employees wishing to use the Gilruth weight room. The next classes are scheduled for at 8 p.m. June 25 and July 9 (must be on time to receive credit for class). Pre-registration is required. Cost is \$5. Annual weight room use fee is \$90. Additional family members are \$50.

**Exercise:** Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24 for eight weeks.

**Aikido:** Introductory martial arts class meets from 5:15-6:15 p.m. Tuesday and Wednesday. New classes begin the first of each month. Instruction is by a fourth-degree black belt. Cost is \$35 per month.

**Step/bench aerobics:** Low-impact cardiovascular workout. Classes meet from 5:15-6:15 p.m. Monday, Tuesdays and Thursdays. Cost is \$32 for eight weeks. Call Kristen Taragzewski, instructor, at x36891 for more information.

**Yoga:** Low impact stretching exercises designed for people of all ages and abilities in a Westernized format. Classes meet from 5-6 p.m. Thursdays. Cost is \$32 for eight weeks.

**Ballroom dancing:** Classes meet from 7-8:15 p.m. Thursdays for beginner advanced classes and from 8:15-9:30 p.m. for beginner-intermediate and intermediate students. Cost is \$60 per couple.

**Country and western dancing:** Beginner class meets 7-8:30 p.m. Monday. Advanced class (must know basic steps to all dances) meets 8:30-10 p.m. Monday. Cost is \$20 per couple.

**Fitness program:** Health Related Fitness Program includes a medical screening examination and a 12-week individually prescribed exercise program. For more information call Larry Wier at x30301.

**Gilruth Home Page:** Check out all activities at the Gilruth online at: <http://www4.jsc.nasa.gov/ah/exceaa/Gilruth/Gilruth.htm>

## Ticket Window

Bldg. 3 Exchange Store hours are 7 a.m.-4 p.m. Monday-Friday.

Bldg. 11 Exchange Store hours are 9 a.m.-3 p.m. Monday-Friday.

For more information, please call x35350.

The following discount tickets are available at the Exchange Stores:

**General Cinema Theaters** .....\$ 5.50

**Sony Loew's Theaters** .....\$ 5.00

**AMC Theaters** .....\$ 4.75

**Astroworld One Day Admission** .....\$24.25  
(valid at all Texas Six Flags Theme Parks)

**Astroworld Season Pass** .....\$57.75  
(valid at all Texas Six Flags Theme Parks and Water World)

**Moody Gardens** (2 of 6 events) .....\$ 9.75

**Sea World** .....adult \$27.25 ... child (3-11) \$18.25

**Schiltebahn** .....adult \$20.75 ... child (3-11) \$17.50

**Space Center Houston** ...adult \$10.25 ... child (4-11) \$ 7.00  
JSC civil service employees free.

**Splashtown Water Park** ...adult \$14.50 child (under 48") \$11.50

Metro Tokens and value cards available.

Houston Comets tickets on sale now in Bldg. 11.

Customer Appreciation Week in Bldg. 3 – June 15-19

Customer Appreciation Week in Bldg. 11 – June 22-26

### EAA Events:

#### Galveston Outdoor Musicals

price: .....adult \$14.00 ... child (12 & under) \$9.00

Cinderella .....June 26

Grease .....July 17

Hello Dolly .....August 7

Anything Goes .....August 28

## Roundup Deadlines

The Space News Roundup is published every other Friday. Story ideas should be submitted as far in advance as possible, but no later than two weeks prior to the date of publication.

The deadline for Dates & Data calendar items is three weeks prior to the date of publication. Stories and ideas should be submitted to Editor Kelly Humphries in Bldg. 2, Rm. 180, or via e-mail to [kelly.o.humphries1@jsc.nasa.gov](mailto:kelly.o.humphries1@jsc.nasa.gov).

Retirees should submit change of address notices to the distribution group at Mail Code BT552 or call Ignacia Ramirez at 281-483-6161.

## Onsite Insights



JSC Photo by Steve Candler

Bob Neil sits among the myriad of network servers and connections in JSC's Bldg. 46 that allow workers around the center to communicate with each other and the outside world.

## Networks never rest

Network guru keeps JSC computers talking to each other

By Kelly Humphries

When Bob Neil is navigating the network of roads around the Clear Lake area on his bicycle, he's winding down from his busy job of maintaining JSC's computer networks.

Neil, assistant manager of the Information Technology Office, part of the center's Information Systems Directorate, covers 50 to 100 miles a week with the local Space City Cycling Club, working off work stress with each push of a pedal.

Still, the Kansas City, Mo., native enjoys his job and takes great satisfaction from the improvements JSC has made in its 12,000-node network that he's been helping to steer since 1986. In particular, he likes the technical challenges.

"If you consider where we were five, eight years ago, we had many different organizations building their own networks across the center. It was very hard for people to talk to each other or talk to the outside world. Reliability could be a real problem," Neil says.

"Now, we've combined a lot of those networks into one network that is very reliable, that is very easy to talk to people in other buildings or talk to people at other centers. In

fact sometimes I think people lose track of how far we've come. The network is very intrinsic to people doing their jobs nowadays."

Neil got rid of his training wheels in 1974, a coop from Purdue University with a bachelor's in aeronautical engineering. He became a flight controller, working in the Apollo-Soyuz experiments back room and in the environmental and consumables back room for early shuttle missions. He left JSC for a while to work for contractors in payload integration and spent a year in Europe as simulation supervisor for the D-1 Space-lab mission. The work he's doing now has greatly changed the way work in his old field is done.

"With all the international partners now, we basically have to work with the world," he says. "Doing mission planning, years ago it was primarily an activity that happened here. But now, they're working on methods for (International Space Station) to do planning around the world. The network is a key part of making that happen."

But providing reliable workstations, network sharing, electronic mail, video conferencing and tools for collaborative engineering and planning is tough when budgets keep tightening.

Outdoor recreation provides relief from such stresses. Neil enjoys riding,

skiing and hiking mountain trails. The riding and skiing are social activities (he oversees all of the ski trips for the local Clear Lake Area Ski Club) with physical benefits (a typical ride will take him to Alvin and back or over the Kemah bridge to Morgans Point and back), but hiking gets him away from everything.

"You go out and ride for two or three hours and it will wash a lot of that out of you. Hiking, you can really forget this place. You can go into Yellowstone or Grand Canyon and go hike and this place can seem a million miles away," he says.

Fitness, the kind that keeps legs pumping for 50 miles or more, takes dedication and perseverance, the same stuff that it has taken JSC to build a computer network that remains accessible 99.9 percent of the time.

"Just knowing that day in and day out, the system works well—that, to me, is a real accomplishment," he says. "I think we are providing the tools that people need to do the function of the center, which is put people in space. I can say that partially since I've done the Mission Control part of the job, too. I know a little bit about the different aspects. There are times when I miss that, but I like this, too." □

## Abbey receives Gilruth Award from North Galveston chamber

JSC Director George Abbey received this year's prestigious Robert R. Gilruth Award from the North Galveston County Chamber of Commerce on Thursday.

The award is presented annually to individuals who have distinguished themselves in the management of flight operations, engineering, science and dedication to the advancement of human space flight. Recipients are recognized for their long-term leadership, management and accomplishment within an area of space flight.

Abbey has been JSC director since January 1996, and was deputy director for two years preceding that appointment. He has served as senior

director for civil space policy at the National Space Council, special assistant to the NASA Administrator, deputy for operations for the Synthesis Group, and deputy associate administrator for space flight at NASA Headquarters.



Abbey

A former Air Force pilot, Abbey joined the Manned Spacecraft Center in 1964, became technical assistant to the Apollo Spacecraft Program manager in 1967, technical assistant to the MSC director in 1969, director of flight operations in 1976 and director of the newly formed Flight Crew Operations Directorate in 1985.

He accepted the Gilruth Award during a luncheon at Landry's Seafood House in Kemah.

## People on the Move

Human Resources reports the following personnel changes as of June 6:

### Key Management Assignments

Cliff McCarra was selected as chief, Resources Control and Reimbursable Branch, Office of the Chief Financial Officer.

### Additions to the Workforce

Nigel Packham joins the Life Support and Thermal Systems Branch in the Engineering Directorate as a senior scientist.

Cheryl Bouillion joins the Cost Accounting, Reporting, and Property Branch in the Office of the Chief Financial Officer as a program analyst.

Damon Shaffer joins the Element Integration Office in the International Space Station Program Office as an aerospace engineer.

Patricia Segura joins the Administration Office at the White Sands Test Facility as a secretary.

Nicole Dickerson joins the Human Resources Development Branch in the Human Resources Office as an employee development specialist.

### Reassignments Between Directorates

Sean Keptra moves from the Safety, Reliability, and Quality Assurance Office to the Space and Life Sciences Directorate.

Ed Burns moves from the Mission Operations Directorate to the Space Operations Management Office.

Tom Costello moves from the Engineering Directorate to the Space Operations Management Office.

### Reassignments Between Centers

Keith Corsi of the Safety, Reliability, and Quality Assurance Office moves to Goddard Space Flight Center.

Mark Pestana of the International Space Station Program Office moves to Dryden Flight Research Center.

### Resignations

Ron Robinson of the Space and Life Sciences Directorate.

Dorothy Henson of the Center Operations Directorate.

### Retirements

Bob Holkan of the Mission Operations Directorate.

## Dates & Data

### June 23

**Grand rounds:** June Space Medicine Grand Rounds will feature Dr. Michael Stanford, chief of Research and Technology Development for the Center for Aerospace Medicine and Physiology at the University of Texas Medical Branch in Galveston. Stanford will discuss "Space Environmental Challenges for a Manned Mission to Mars" at 8:30 a.m. June 23 at the Open Gates Telecommunications Center, 2419 Sealy in Galveston. Call x30452 to reserve a space in the van leaving Bldg. 37 at 7 a.m. Call 244-2019 for more information.

### June 24

**Astronomy seminar:** The JSC Astronomy Seminar will meet at noon June 24 in Bldg. 31, Rm. 129. An open discussion meeting is planned. For more information, call Al Jackson at x35037.

**Spaceland Toastmasters meet:** The Spaceland Toastmasters will meet at 7 a.m. June 24 at the House of Prayer Lutheran Church. For more information, call Jeannette Darcy at x45752.

**Communicators meet:** The Clear Lake Communicators will meet at 11:30 a.m. June 24. For information and location, contact Henry Duke at 281-280-4403 or Melissa Sommers at 281-332-0698.

**Spaceteam Toastmasters meet:** The Spaceteam Toastmasters will meet at 11:30 a.m. June 24 at United Space Alliance, 600 Gemini. For details, call Patricia Blackwell at 281-282-4302 or Brian Collins at x35190.

### June 25

**Radio Club meets:** The JSC Amateur Radio Club will meet at 6 p.m. June 25 at the Piccadilly Cafeteria, 2465 Bay Area Blvd. For more information, call Larry Dietrich at x39198.

### July 3

**Independence Day:** Most JSC offices will be closed July 3 in observance of the July 4 Independence Day Holiday.

### July 8

**PSI meets:** The Clear Lake/NASA Chapter of Professional Secretaries

International will meet at 5:30 p.m. July 8. For more information, call Elaine Kemp at x30556.

### July 9

**NCMA meets:** The National Contract Management Association will meet at 11:30 a.m. July 9 at the Clear Lake Golf Club. For more information, call David Moles at 280-4159.

**Warning system test:** The site-wide Employee Warning System will perform its monthly audio test at noon July 9. For more information, call Bob Gaffney at x34249.

**MAES meets:** The Society of Mexican American Engineers and Scientists will meet at 5 p.m. July 9 at Mario's Pizza in Webster. For more information, call George Salazar at x30162.

**SSQ meets:** The Society for Software Quality will meet at 6:45 p.m. July 9 at the Holiday Inn. Registration and social begin at 5:30 p.m. with dinner at 6 p.m. To make a reservation, call Earl Lee at 335-2322 or Herb Babineaux at x34263.

**TSU alumni meet:** The Texas Southern University, Clear Lake/

Galveston Alumni Chapter will meet at 6:30 p.m. July 9 on the TSU campus in Hannah Hall Room 217. For more information call 281-481-0950 or Janell Ellison at 713-731-0949.

**Airplane club meets:** The MSC Radio Control Airplane Club meets at 7 p.m. July 9 at the Clear Lake Park building. For more information, call Bill Langdoc at x35970.

### July 10

**Space Society meets:** The Clear Lake Area chapter of the National Space Society will meet at 6:30 p.m. July 10 at the Radisson Hotel, 9100 Gulf Fwy. In the Deer Park room. For more information, call Murray Clark at 281-367-2227.

**Astronomers meet:** The JSC Astronomical Society will meet at 7:30 p.m. July 10 at the Center for Advanced Space Studies, 3600 Bay Area Blvd. For more information, call Chuck Shaw at x35416.

### July 14

**NPMA meets:** The National Property Management Association will meet at 5 p.m. July 14 at Robinette and Doyle Caterers, 216 Kirby in

Seabrook. Dinner costs \$14. For details call Sina Hawsey at x36582.

**Aero club meets:** The Bay Area Aero Club will meet at 7 p.m. July 14 at the Houston Gulf Airport clubhouse at 2750 FM 1266 in League City. For more information call Larry Hendrickson at x32050.

### July 15

**Scuba club meets:** The Lunarflin scuba club will meet at 7:30 p.m. July 15 at Pot Pie Pizzeria at Westgate Marina. For more information, call Mike Manering at x32618.

### July 16

**Directors meet:** The Space Family Education board of directors will meet at 11:30 a.m. July 16 in Bldg. 45, Rm. 712D. For more information on this open meeting, call Gretchen Thomas at x37664.

### July 30

**Radio Club meets:** The JSC Amateur Radio Club will meet at 6:30 p.m. July 30 at the Piccadilly, 2465 Bay Area Blvd. For additional information, call Larry Dietrich at x39198.

## NASA Briefs

### Shuttle research leading to diabetes breakthroughs

Diabetic patients may someday reduce their insulin injections and lead more normal lives because of new insights gained through innovative space research in which the largest insulin crystals ever studied were grown on the space shuttle. Results from a 1994 insulin crystal growth experiment in space are leading to a new understanding of diabetes. "The space-grown insulin crystals have provided us new, never-before-seen information," said Dr. G. David Smith, scientist at Hauptman-Woodward Medical Research Institute, Buffalo, N.Y. Because of the increase in crystal size, Smith's team is able to study in more detail the delicate balance of the insulin molecule. With some of the new and unexpected findings, researchers may be able to improve how insulin is released from its stored state to its active state. This could greatly improve the quality-of-life of people on insulin therapy by cutting down on the number of injections they need.

### SeaWinds instrument ready for installation

A major milestone has been reached in NASA's development of "faster, better, cheaper" space missions with the delivery of the SeaWinds instrument, NASA's next generation El Niño monitoring device to Ball Aerospace in Boulder, Colo., for integration into the Quick Scatterometer satellite. SeaWinds is a specialized microwave radar that measures both the speed and direction of winds near the ocean surface. Winds directly affect the turbulent exchanges of heat, moisture and greenhouse gases between the atmosphere and the ocean. Changes in the winds along the equator play a key role in the formation of the El Niño phenomenon. SeaWinds will use a rotating dish antenna and radiate microwaves across 90 percent of the Earth's ice-free oceans every day. The instrument will collect wind speed and wind direction data in a continuous 1,118-mile-wide band, making 400,000 measurements daily.

### SOHO coronagraph sees comets hit Sun

In a rare celestial spectacle, two comets have been seen plunging into the Sun's atmosphere in close succession, on June 1 and 2. This unusual event on Earth's own star was followed on June 2 by a likely unrelated but also dramatic ejection of solar gas and magnetic fields on the southwest limb of the Sun. The observations of the comets and the large erupting prominence were made by the LASCO coronagraph on the Solar and Heliospheric Observatory spacecraft. Images are on the Internet at [http://umbra.nascom.nasa.gov/comets/SOHO\\_sun-grazers.html](http://umbra.nascom.nasa.gov/comets/SOHO_sun-grazers.html)

# University of Houston, JSC start incubator

**(Continued from Page 1)** the commercial market, helping develop business plans and locating venture capital, without which many start-up companies could not succeed," Davis said.

The university brings two distinct strengths vital to promoting small business use of NASA advanced technologies: top scientists to develop technologies for private sec-

tor use and a renown business faculty to help target commercialization opportunities.

UH researchers along with NASA and private sector experts will first review NASA technologies to identify those that match faculty expertise and have market potential. Then UH faculty will submit proposals to develop and refine the technologies for commercial use. As UH faculty

members develop a space technology, the search begins for businesses that may be interested in partnering with UH to commercialize the technology. Because building the business around a technology often becomes the most difficult part of commercialization, the UH College of Business Administration's Small Business Development Center and Center for Entrepreneurship

and Innovation helps the company form a business plan and assists with marketing and financing required for implementation.

A recent study by the National Business Incubation Association estimated that every dollar invested in an incubator returns nearly five dollars to the local economy, particularly in diversifying the industrial base.



JSC Photo S98-08108 by Steve Candler  
**TEA TIME—NASA Astronaut Soichi Noguchi bows graciously as NASA JSC Equal Opportunity Specialist Jessie Hendrick drinks tea during a Japanese tea ceremony. The ceremony was part of the recent JSC Asian Pacific American Heritage Month in the Bldg. 3 cafeteria. Ryoko Shimizu, center, president of the Japanese Student Association at the University of Houston-Clear Lake, and Isako Tamari performed the ceremony. Tamari has been an approved tea instructor for the Ura Senke school in Japan for more than 35 years.**

## Space Center Houston opens Mars attraction

Mars, the mysterious fourth planet from the Sun, has captivated the American psyche for decades, and now Space Center Houston is inviting the public to be among the first to experience a thrilling voyage to another world.

This summer, Space Center Houston is hosting Southwestern Bell's "Race to the Red Planet," an interactive vision of the first human mission to Mars. The high-energy virtual reality and interactive exhibits will be open through Labor Day.

In the exciting, hands-on exhibit, visitors will experience the many elements involved in mission training, discovery how the body, mind and spacecraft are affected in the long journey through space, and be the first Earthlings to set foot onto the surface of the Red Planet.

The mission to Mars begins at the Space Port, where visitors are "transported" through an airlock chamber to the crew briefing site. All preliminary information about the mission to Mars is revealed, including the reasons Mars is an important destination. In the Space Port, visitors will select crew members and finalize details of the six-month journey, conduct training exercises and get launch information through hands-on experiments, computer interaction, and video and sound recordings.

Upon completion of training, the new crew members enter a second airlock and depart Earth aboard a Mars Transfer Vehicle. The visiting crew will learn how to keep their physical strength and counter the effects of zero gravity. They'll also prepare for repairs in the event of damage and help map out the landing site.

Visitors next will pass through a landing airlock, and step onto the surface of "Mars," where a surface habitat that arrived before the crew left Earth will provide interactive displays for experimenting with everything from geology to the possibility of life on Mars. The habitat will allow visitors to explore differences between Mars and Earth in terms of weather patterns, constellations, gravity changes and communications. They'll also be able to strap into a space pod and at 300 miles an hour race against time, the elements and each other.

Badged JSC civil service and contractor employees may visit Space Center Houston for free. Normal admission is \$12.95 for adults, \$11.95 for seniors and \$8.95 for children 4-11. Children under 4 are admitted free.

## JSC workers in 1998 astronaut class

**(Continued from Page 1)**

Gregory C. Johnson; Gregory H. Johnson (Maj., USAF); Stanley G. Love, Ph.D.; Leland D. Melvin; Barbara R. Morgan; William A. Oefelein (Lt., USN); John D. Olivias, Ph.D., Nicholas J.M. Patrick, Ph.D.; Alan G. Poindexter (Lt. Cmdr., USN); Garrett E. Reisman, Ph.D.; Steven R. Swanson; Douglas H. Wheelock (Maj., USA); Sunita L. Williams (Lt. Cmdr., USN); Neil W. Woodward III (Lt., USN); and George D. Zamka (Maj., USMC).

Anderson is the manager of JSC's Emergency Operations Center. Chamitoff is a United Space Alliance flight controller. Creamer and Wheelock are space operations

officers for the Army Space Command. Fossum is an X-38 flight test engineer. Hilliard is a medical officer. Greg C. Johnson is a research pilot and chief of the Maintenance and Engineering Branch. Swanson is an aerospace engineer.

Following a period of training and evaluation, the astronauts will receive technical assignments within the Astronaut Office before receiving a space flight assignment.

A complete list of the candidates and their biographical data can be found on the Internet at the following URL:

<ftp://ftp.hq.nasa.gov/pub/pao/press-rel/1998/98-097a.txt>

## Flags allow employees to display their heritage

**(Continued from Page 1)**

Aldersgate Praise and others. During the week, employee exhibits and displays will be needed for exhibition in the Bldg. 3 cafeteria. The exhibits/displays will depict employees' skills and interests in the following categories: art work (painting, sculpting, modeling); needlework (quilting, embroidering, needlepoint, dress making); hobbies (collecting, crafting, woodworking, genealogy); and in honor of NASA's 40th Anniversary, there will be a NASA memorabilia day.

Both civil servants and contractor employees are welcome to participate. Interested exhibitors should contact Jessie Hendrick at x31203.

American Heritage Week, once again, will give employees' children an opportunity to show their artistic talents through coloring. Entries should be related to an American Heritage theme. Children ages 2-15 are eligible to submit one entry per child. A token of appreciation will be sent to each child's parent. The colored entries will be displayed in the lobby of Bldg. 1

July 6-9, and at the Gilruth July 10. Entry forms have been distributed around the center, and also may be picked up from Paula Scheffman, Mail Code AJ, Bldg. 1, Room 172. All entries must be on the official entry form and be returned to Scheffman no later than June 30. Ribbons will be awarded to the winning entries.

What's your heritage? Last year, several companies and individuals purchased international flags that are permanently displayed in Teague Auditorium and are identified as a

donation from the company or individual that purchased them. This year, JSC hopes to expand the collection to include all of the cultures of Team NASA. The goal is for the flags to completely represent the work force. Flags cost \$56 each (including a flag stand) and order forms are available from Pat Burke at x30606.

Additional details regarding American Heritage Week will be provided through the Equal Opportunity Programs Office via the Internet at <http://www4.jsc.nasa.gov/EPO>

## Open season on retirement swaps

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if they're unsure which retirement system they're under.

JSC is providing several sources of information and assistance to help employee make the best possible FERS transfer decision. The Human Resources home page provides the most current, comprehensive source of information on transferring to FERS. The new web pages include the latest version of the FERS Transfer Handbook, transfer forms, comparison software, schedules, answers to frequently asked questions, and links to the Office of Personnel Management and Social Security web sites.

JSC will sponsor two training sessions each month from July through December. Each four-

hour session will focus on helping employees make an informed decision on whether to transfer. The class schedule is posted on the web site. No sign-up is required, but seating will be on a first-come, first-served basis.

OPM is providing computer software for employees to use in comparing their CSRS and FERS benefits. The easy-to-use software allows employees to input different variables, dates, and scenarios and review the resulting impacts under both CSRS and FERS. The software is available for downloading from the Human Resources home page.

Employee Services Representatives are available to provide assistance and individual counseling. Just call x32681 for an appointment.

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